Remarks

Claims 1-15 are pending in the application. The specification was objected to. The amendment filed July 9, 2004, is objected to under 35 USC 132 because it introduces new matter into the disclosure. This amendment has been removed and the text reset to it originally-file form with respect to the sentence at issue. It is therefore submitted that this rejection has been overcome and withdrawal of this rejection is requested.

Claim 3 is rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. This claim has been canceled by this amendment and withdrawal of this rejection is requested.

Claims 1-9 were rejected under 35 USC 102(b) as being anticipated by Mintzer (US Patent No. 5,210,602). Claims 10-11 were rejected under 35 USC 103(a) as being unpatentable over Mintzer in view of Ball ("Sam's Teach Yourself Linux in 24 Hours", Sam's Publishing, 1998). Claims 12-15 were rejected under 35 USC 103(a) as being unpatentable over Mintzer in view of Shu (US Patent No. 5,757,976).

The above claims have been canceled from this application and new claims 16-24 have been added. These new claims still address some aspects of the invention that were previously claimed, so Applicant has provided responses to the cited references below.

With regard to new claim 16, as discussed in the specification on page 5, for example, an error buffer for a monochrome case is populated by generating a set of values from a random number generator and then selecting the values that are relatively large, where relatively large is defined as being likely to cause a dot to be printed. Mintzer does not mention manipulating the values of the randomly generated numbers to select the larger values. Mintzer only mentions multiplying them from a constant store, with no indication of the selection of the contant. See Mintzer, col. 7. lines 30-41.

Docket No. 8371-104   Page 5 of 8   Application No. 09/667,964

Shu mentions 'large' and 'small' filters, but that is directed to size, not weight. Further, Shu discloses several error buffers, not one error buffer with selected values that are relatively large. Indeed, Shu discloses that the error filters are of different sizes and weights and does not address selecting the values in a single error buffer to be relatively large.

Claim 17 depends from claim 16 and inherently includes all of the limitations of the base claim. As discussed above, the prior art does not teach the limitations of the base claim much less the further embodiments of the dependent claim.

It is therefore submitted that claims 16 and 17 are patentably distinguishable over the prior art and allowance of these claims is requested.

With regard to claims 18-24, claim 18 requires that at least one error buffer be negatively correlated to the other error buffers. This aspect of the invention had been claimed in now-canceled claim 5. The office action states, "An error (δ_i) is calculated for the first color. Said error is then used along with a coefficient (α^{12}) to calculate the quantized ouput value of the pixel of the second color. The difference between the modified pixel value of the output pixel value of the second color determines the error in the pixel value of the second color. The error in the pixel value is then used to update the diffused error value of the second color...The coefficient α^{12} therefore correlates the first random seed error value..and the second random seed error value...The error calculated...and is used to reduce the graininess in the resultant color image..."

While the relationships between the error values of the first color being used to calculate the second modified pixel value, etc., the correlation is not a *negative* correlation. A negative correlation is a relationship between two values, such that if a first value increases the second value decreases, and the reverse.

As can be see in Mintzer, there are 5 values for each color: 1) an input pixel value; 2) a diffused error value; 3) a modified pixel value; 4) an output pixel value and 5) a quantized

Docket No. 8371-104   Page 6 of 8   Application No. 09/667,964

error value. The first color modified pixel value is found by adding the diffused error value to the input pixel value to arrive at the modified pixel value. The output pixel value is the pixel value selected to be nearest to the modified pixel value. The quantized error is the difference between the modified pixel value and the quantized pixel value.

The modified pixel value for the second color is the diffused error already computed from the second error buffer plus the input pixel value. The output pixel value is the output pixel value nearest the modified pixel value plus a constant times the quantization error for the first color. The same process occurs for the third color.

This means that when the quantization error for the first color increases, so does the modified pixel value, and increases in the second increase the third. This is not a negative correlation. Therefore, the values from this process are not negatively correlated.

Further, the error values used in the error diffusion process are the quantization errors, but there is also another error value $e_{i,j}{}^{ck}$. It appears that these values are obtained from standard error diffusion (see Mintzer col. 5, lines 13-23), which are more analogous to the error buffers used in the invention as claimed. As discussed in Mintzer, col. 6, lines 35-55, for color 1, and col. 6, line 56-62 for color 2, the error diffusion values $e_{i,j}{}^{ck}$ are incremented by amounts computed from the color quantization error. Therefore, these error values are similarly positively correlated with the quantization error.

As amended, claim 18 requires that at least one error buffer be negatively correlated to one other buffer. This is not shown, taught, nor suggested by the prior art. It is therefore submitted that claim 18 is patentably distinguishable over the prior art and allowance of this claim is requested.

Claims 19-23 depend from claim 18 and address the generation of the first set of seed values and cover alternative embodiments on how to achieve the negative correlation. As negative correlation is not shown, taught nor suggested by the prior art, it is therefore

Docket No. 8371-104   **Page 7 of 8**   Application No. 09/667,964

submitted that claims 19-23 are patentably distinguishable over the prior art and allowance of these claims is requested.

Claim 24 is directed to a method of initializing error buffers with seed values such that each set of seed values is 120 degrees out of phase with the other two error buffers. Neither Mintzer nor Shu address phrase relationships among the error buffers, much less that they are 120 degrees out of phase with each due to application of a function. It is therefore submitted that claim 24 is patentably distinguishable over the prior art and allowance of this claim is requested.

No new matter has been added by this amendment. Allowance of all claims is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Customer No. 46404

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.

Julie L. Reed
Julie L. Reed
Reg. No. 35,349

MARGER JOHNSON & McCollom
1030 SW Morrison Street
Portland, OR 97205
(503) 222-361